UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,249	11/10/2005	Xuecheng Qian	CN 030011	6573

65913 7590 06/03/2009

NXP, B.V.
NXP INTELLECTUAL PROPERTY DEPARTMENT
M/S41-SJ
1109 MCKAY DRIVE
SAN JOSE, CA 95131

EXAMINER	
TORRES, JUAN A	
ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
06/03/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No.	Applicant(s)	
	10/556,249	QIAN, XUECHENG	
	Examiner	Art Unit	
	JUAN A. TORRES	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *2 and 6* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5,7-9,13 and 16* is/are rejected.

7)☒ Claim(s) *10-12,14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Regarding claim 1:

Applicant's arguments filed 04/28/2009 have been fully considered but they are not persuasive.

The Applicant contends:

"Claim 1 recites in part a digital filter that filters digital signals to *"allow relaxation of tolerable quantization noise generated by the ADC to a pre-defined level to thereby substantially reduce a dynamic range of the ADC, wherein the pre-defined level is higher than a level prescribed by the receiver's sensitivity."* In other words, claim 1 recites that the dynamic range of an ADC is reduced as a result of the relaxation of tolerable quantization noise generated by the ADC. Claim 1 also recites that the relaxation of tolerable quantization noise generated by the ADC is to a level that is higher than a level prescribed by the receiver's sensitivity. Applicant respectfully asserts that Ostman, Mathe, and the AAPA fail to teach that *"the pre-defined level is higher than a level prescribed by the receiver's sensitivity"* (emphasis added), as recited in claim 1. The Office Action states that Ostman and Mathe both fail to teach that *"the pre-defined level is higher than a level prescribed by the receiver's sensitivity"* (emphasis added), as recited in claim 1. (See page 3 and page 7 of the Office Action). The Office Action cites the AAPA, in particular, Fig. 1 and page 2, lines 12-20 of Applicant's specification, as teaching that *"the pre-defined level is higher than a level prescribed by the receiver's sensitivity"* (emphasis added), as recited in claim 1. Applicant respectfully asserts that the AAPA fails to teach the above-identified limitation of claim 1. With reference to Fig. 1, the AAPA teaches that the quantization noise of an n-bit analog-to-digital converter (ADC) (52) is specified by the sensitivity of a conventional RF receiver (10). (See also page 2, lines 12-15 of Applicant's specification). The AAPA further teaches that the lower limit of the dynamic range of the ADC (52) is specified by the equivalent quantization noise level as prescribed by the sensitivity of the conventional RF receiver (10) and the required signal to-interference ratio (SIR). (See Fig. 1 and page 2, lines 16-20 of Applicant's specification). That is, the AAPA teaches that the dynamic range of the ADC (52) cannot be lower than a level prescribed by the sensitivity of the conventional RF receiver (10). The dynamic range of the ADC (52) will be reduced when the quantization noise generated by the ADC (52) increases. Thus, if the quantization noise generated by the ADC (52) is higher than the sensitivity of the conventional RF receiver (10), the dynamic range of the ADC (52) will be lower than a level prescribed by the sensitivity of the conventional RF receiver (10). However, as described above, the AAPA teaches that the dynamic range of the ADC (52) cannot be lower than a level prescribed by the sensitivity of the conventional RF receiver (10). As a result, the quantization noise generated by the ADC (52) cannot be higher than the sensitivity of the conventional RF receiver (10). Because the quantization noise generated by the ADC (52) cannot be

> higher than the sensitivity of the conventional RF receiver (10), Applicant respectfully asserts that the AAPA fails to teach that *"the pre-defined level is higher than a level prescribed by the receiver's sensitivity"* (emphasis added), as recited in claim 1. Because Ostman, Mathe, and the AAPA fail to teach the above-identified limitation of claim 1, Ostman, Mathe, and the AAPA fail to teach all of the limitations of claim 1. Thus, Applicant respectfully asserts that a *prima facie* case of obviousness has not been established with respect to claim 1"

The Examiner disagrees, and asserts that, the invention could be resumed in the difference between figures 1 and 3. Figure 1 is AAPA. The claimed invention in figure 3 includes a Digital filter after the ADC that reduced the noise/interference of the system and allows the use of a less resolution ADC that will reduce the price of the system. This technique is known as indicated in the previous Office action by several references Östman and Mathe. Both Östman and Mathe used a digital filtering after the ADC to reduce the noise/interference of the signal and allow the use of a lower resolution ADC that reduces the price of the system.

The sensibility of the receiver is the lowest signal that the receiver will be able to detect, signals below the sensibility of the receiver will not be able to be detected (the receiver will think that those signals are noise) and the receiver will indicate all the signal below the sensibility with the same value of its sensibility, for this reason the quantization noise of the ADC is imposed by the sensibility of the receiver (as indicated by AAPA" the ADC quantization noise is specified by the receivers sensitivity"), because the quantization noise of the ADC is the lower value of the ADC output.

The fact that the ADC resolution is changed from 10 bits to 5 bits forces inherently that the quantization noise (or the difference between consecutive steps magnitude of the ADC) also change from 2^{10} (1024) levels to 2^{5} (32) levels, so every 32

or more levels of the original/conventional ADC are converted in only one level of the used ADC, therefore, because the sensibility of the receiver is the same, clearly the new quantization noise (dynamic range divided by the number of steps [32]) will be inherently above the sensibility of the receiver, because the new quantization noise is 32 time higher than the original/conventional quantization noise (that was based in the receiver sensibility).

Östman specifically discloses that the use of the digital filter will increase the SNR in 30 dB that using the AAPA in figure 2 will clearly put the predetermined level above the level prescribed by the receiver's sensibility.

The 30 dB indicated by Östman are very similar to the (119.15 -90.24)= 28.91 dB indicated by the Applicant in figure 4).

The same value of 30 dB is provided by Darveau (US 6240150 B1) in column 7 lines 4-6).

Parssinen (US 6993291 B2) provides "A well-known formula which calculates the relationship between the number of bits and dynamic range is:

DR=SNR=6.02*m+1.76 dB;

where DR is the dynamic range requirement and m is the total number of bits of resolution for the ADC" that seems to agree with the results provided by Östman and Darveau

m (bits)	1	2	3	4	5	6	7	8	9	10
DR (dB)	7.78	13.8	19.82	25.84	31.86	37.88	43.9	49.92	55.94	61.96

It doesn't make sense to design an original/conventional ADC with a quantization noise 32 times below the sensibility of the receiver (see KSR). AAPA acknowledges that the original/conventional ADC quantization noise is specified by the receiver sensibility; therefore the final ADC (with lower bit resolution) will inherently have a quantization noise (32 times higher than the original quantization noise) above the receiver sensibility.

AAPA discloses:

> "In order to achieve the required SIR, the interference (I) component should be maintained within a tolerable range. The interference at the input of demodulator 62 mainly comprises the residual external interferers and the receiver noise, which includes the circuit noise from all the components in the receiver and the ADC quantization noise generated during the sampling operation. The circuit noise remains substantially constant, while the ADC quantization noise is specified by the receivers sensitivity and usually contributes little to the overall receiver noise. An important feature of the ADC is its word length which specifies the number of bits for each sampling of the input signal. The word length depends on the dynamic range requirement of the ADC. The lower limit of the dynamic range is specified by the equivalent quantization noise level as prescribed by the receiver sensitivity and the required SIR, while the upper limit is specified by the equivalent peak power of the ADC input. In a receiver in which the out-of-band interferer is not sufficiently attenuated by the analog filters, the residual interferer also has influence on the peak power at the ADC input. In some cases, the residual interferer may be much stronger than the wanted signal and receiver noise, and therefore its power level specifies the equivalent peak power of the ADC input. In such cases, the dynamic range required for the ADC is greatly increased, since the specified equivalent quantization noise remains at a very low level. This causes an substantial increase to the overall cost of the receiver, since not only the cost of the ADC is increased as a result of an increase in its word length, the costs of all the signal processing modules following the ADC (e.g., the demodulator) have to be increased to accommodate the complexities in handling the resulting larger digital data output from the ADC. FIG. 2 illustrates an example in connection with a conventional receiver, with reference to the TD-SCDMA specification. In this example, the equivalent receiver noise is -104.15 dBm and the specified equivalent quantization noise is at -119.15 dBm, which is much lower than the overall receiver noise. The maximum specified power level of an adjacent channel interferer is -54 dBm and is suppressed by the analog filters to -76 dBm. This residual interferer may be further suppressed by a digital filter to -87.24 dBm. Taking into consideration of a known peak-to-average ratio of 12 dB, the peak power of the equivalent the ADC input is -64 dBm. Therefore, the required dynamic range of the ADC Is the difference between -64 dBm and -119.15 dBm, i.e., 55.15 dB. This usually translates to an equivalent word length between 8 to 10 bit long. As described above, the longer the ADC's word length is, the higher the overall receiver's cost is."

In the KSR case, the Court stated that in certain circumstances what is obvious to try is also obvious, such as where "there is a design need or market pressure to solve a problem, and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." Regarding hindsight, the Court found that "[r]igid preventive rules that deny fact finders recourse to common sense . . . are neither necessary under our case law nor consistent with it." The Court stated that "familiar items may have obvious uses beyond their primary purposes," analogizing an obvious invention to the fitting together of pieces to a puzzle. The Court in this regard further stated that the person of ordinary skill is also a person of ordinary creativity, and not "an automaton.")

For these reasons and the reasons of the previous Office action the rejection of claim 1 is maintained.

Regarding claims 3-4:

Applicant's arguments filed 04/28/2009 have been fully considered but they are not persuasive.

The Applicant contends:

> "Claims 3-4 depend from and incorporate all of the limitations of the independent claim 1. Thus, Applicant respectfully asserts that claims 3-4 are allowable at least based on an allowable claim 1."

The Examiner disagrees, and asserts that because the rejection of claim 1 is maintained, the rejection of claims 3-4 are also maintained.

For these reasons and the reasons of the previous Office action the rejection of claims 3-4 are maintained.

Regarding claim 5:

Applicant's arguments filed 04/28/2009 have been fully considered but they are not persuasive.

The Applicant contends:

> "Claim 5 includes similar limitations to claim 1. Because of the similarities between claim 1 and 5, Applicant respectfully asserts that the above remarks with regard to claim 1 apply also to claim 5. Accordingly, Applicant respectfully asserts that claim 5 is patentable over Ostman, Mathe, and the AAPA."

The Examiner disagrees, and asserts that because the rejection of claim 1 is maintained, the rejection of claim 5 is also maintained.

For these reasons and the reasons of the previous Office action the rejection of claim 5 is maintained.

Regarding claims 7-8:

Applicant's arguments filed 04/28/2009 have been fully considered but they are not persuasive.

The Applicant contends:

> "Claims 7-8 depend from and incorporate all of the limitations of the independent claim 5. Thus, Applicant respectfully asserts that claims 7-8 are allowable at least based on an allowable claim 5."

The Examiner disagrees, and asserts that because the rejection of claim 5 is maintained, the rejection of claims 7-8 are also maintained.

For these reasons and the reasons of the previous Office action the rejection of claims 7-8 are maintained.

Regarding claims 9-10:

Applicant's arguments filed 04/28/2009 have been fully considered but they are not persuasive.

The Applicant contends:

> "Claims 9-10 depend from and incorporate all of the limitations of the independent claim 1. Thus, Applicant respectfully asserts that claims 9-10 are allowable at least based on an allowable claim 1."

The Examiner disagrees, and asserts that because the rejection of claim 1 is maintained, the rejection of claim 9 is also maintained.

For these reasons and the reasons of the previous Office action the rejection of claim 9 is maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-5, 7-9, 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Östman (US 6061385 A) in view of Applicant Admitted Prior Art (AAPA).

Regarding claims 1 and 5, Östman discloses a processing unit that processes received signals and filters the processed signals in an analog domain to output filtered analog signals (figures 2 and 4 blocks 1-13 column 6 lines 22-47); an analog-to-digital converter (ADC) that converts the filtered analog signals into digital signals (figures 2

and 4 blocks 14 column 6 lines 62-66); and a digital filter that filters the digital signals from the ADC and attenuates residual interferers in the digital signals by a predetermined amount, so as to allow relaxation of tolerable quantization noise generated by the ADC to a pre-defined level to thereby substantially reduce a dynamic range of the ADC; wherein the ADC has a word length corresponding to the reduced dynamic range (figures 2 and blocks 50 and 32 column 6 line 49 to column 7 line 2). Östman doesn't specifically disclose that the pre-defined level is higher than a level prescribed by the receiver's sensitivity. AAPA discloses that the pre-defined level is higher than a level prescribed by the receiver's sensitivity (figure 1 page 2 lines 12-20). Östman and AAPA teachings are analogous art because they are from the same field of digital signal processing. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate in the methodology disclosed by and Östman with the sensitivity disclosed by AAPA. The suggestion/motivation for doing so would have been to reduce the cost of the system (AAPA page 2 line 12 to page 3 line 21-20. This limitation is also common sense, [see response to arguments above], see also Östman column 6 line 62 to column 7 line 10).

Regarding claims 3 and 7, Östman and AAPA disclose claims 1 and 5, AAPA also discloses that the pre-defined level of the quantization noise is maintained within a range, such that the total interference of the receiver is kept at a level not greater than an allowable level (figure 1 page 1 lines 8-15 page 2 lines 8-15. see response to arguments above, This limitation is also common sense, [see KSR Int'l Co. v. Teleflex

Inc.], in this particular case, as acknowledged by AAPA the interference should be below the allowable level).

Regarding claims 4 and 8, Östman and AAPA disclose claims 1 and 5, Östman also discloses a demodulator that demodulates the filtered digital signals from the ADC to recover user data (figure 4 block 33 column 7 lines 20-34).

Regarding claim 9, Östman and AAPA disclose claim 1, Östman also discloses that the digital filter is a digital filter configured to attenuate out-of-band interferers (figures 2 and blocks 50 and 32 column 6 line 49 to column 7 line 2. The filter used by Östman is the baseband signal after the ADC. AAPA discloses a low-pass filter (LPF) 42 before the AGC 46. At the time of the invention it will be obvious to one of ordinary skill in the art to use also a LPF after the ADC, because the signal already filtered is a low-pass signal. Again this is also common sense, if the signal before the ADC uses a LPF, after the ADC the LPF should be maintained, also the use of LPF are easy to design, have low complexity and are well known in the art [see KSR Int'l Co. v. Teleflex Inc.])

Regarding claims 13 and 16, Östman and AAPA disclose claims 1 and 5, Östman also discloses that the number of quantization bits required at the converting step is between 3 and 5 (figure 4 block 33 column 6 line 49 to column 7 line 10).

Claim 9 is also rejected under 35 U.S.C. 103(a) as being unpatentable over Östman and AAPA as applied to claim 1 above and further in view of Mostafa (US 7110732 B2).

Regarding claim 9, Östman and AAPA disclose claim 1, Östman and AAPA don't specifically disclose that the digital filter is a low-pass filter. Mostafa discloses a digital LPF after the ADC (figure 6 block 86). Östman, AAPA and Mostafa teachings are analogous art because they are from the same field of digital signal processing. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate in the methodology disclosed by and Östman and AAPA with the digital LPF disclosed by Mostafa. The suggestion/motivation for doing so would have been to have to reduce the noise of the signal.

Claims 1, 3-5, 7-9, 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathe (US 6243430 B1) in view of Applicant Admitted Prior Art (AAPA).

Regarding claims 1 and 5, Mathe discloses a processing unit that processes received signals and filters the processed signals in an analog domain to output filtered analog signals (figure 2 blocks 112-126 column 5 line 62 to column 6 line 12); an analog-to-digital converter (ADC) that converts the filtered analog signals into digital signals (figure 2 block 240 column 6 lines 12-17); and a digital filter that filters the digital signals from the ADC and attenuates residual interferers in the digital signals by a predetermined amount, so as to allow relaxation of tolerable quantization noise generated by the ADC to a pre-defined level to thereby substantially reduce a dynamic range of the ADC; wherein the ADC has a word length corresponding to the reduced dynamic range (figure 2 blocks 250 and figure 5 column 8 lines 4-42). Mathe doesn't specifically disclose that the pre-defined level is higher than a level prescribed by the

receiver's sensitivity. AAPA discloses that the pre-defined level is higher than a level prescribed by the receiver's sensitivity (figure 1 page 2 lines 12-20). Mathe and AAPA teachings are analogous art because they are from the same field of digital signal processing. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate in the methodology disclosed by and Mathe with the sensitivity disclosed by AAPA. The suggestion/motivation for doing so would have been to reduce the cost of the system (AAPA page 2 line 12 to page 3 line 21-20. This limitation is also common sense, see response to arguments above, see also Östman column 6 line 62 to column 7 line 10).

Regarding claims 3 and 7, Mathe and AAPA disclose claims 1 and 5, AAPA also discloses that the pre-defined level of the quantization noise is maintained within a range, such that the total interference of the receiver is kept at a level not greater than an allowable level (figure 1 page 1 lines 8-15 page 2 lines 8-15. see response to arguments above, This limitation is also common sense, [see KSR Int'l Co. v. Teleflex Inc.], in this particular case, as acknowledged by AAPA the interference should be below the allowable level).

Regarding claims 4 and 8, Mathe and AAPA disclose claims 1 and 5, Mathe also discloses a demodulator that demodulates the filtered digital signals from the ADC to recover user data (figure 2 blocks 250 and figure 5 column 8 lines 4-42).

Regarding claim 9, Mathe and AAPA disclose claim 1, Mathe also discloses that the digital filter is a digital filter configured to attenuate out-of-band interferers. The filter used by Mathe is the band pass filter BPF that is formed by a LPF and a HPF, A LPF is

also a particular case of a LPF where the low pass frequency is zero, the LPF is also less complex than the BPF, and as indicated previously the BPF includes a LPF, Mathe also discloses the use of a LPF after the BPF in block 520, so the signal after the ADC is LPF by filter 520. AAPA discloses a low-pass filter (LPF) 42 before the AGC 46. At the time of the invention it will be obvious to one of ordinary skill in the art to use also a LPF after the ADC, because the signal already filtered is a low-pass signal. Again this is also common sense, if the signal before the ADC uses a LPF, after the ADC the LPF should be maintained, also the use of LPF are easy to design, have low complexity and are well known in the art. see KSR Int'l Co. v. Teleflex Inc.)

Regarding claims 13 and 16, Mathe and AAPA disclose claims 1 and 5, Mathe also discloses that the number of quantization bits required at the converting step is between 3 and 5 (column 10 lines 5-9).

Claim 9 is also rejected under 35 U.S.C. 103(a) as being unpatentable over Mathe and AAPA as applied to claim 1 above and further in view of Mostafa (US 7110732 B2).

Regarding claim 9, Mathe and AAPA disclose claim 1, Mathe and AAPA don't specifically disclose that the digital filter is a low-pass filter. Mostafa discloses a digital LPF after the ADC (figure 6 block 86). Mathe, AAPA and Mostafa teachings are analogous art because they are from the same field of digital signal processing. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate in the methodology disclosed by and Mathe and AAPA with the digital LPF

disclosed by Mostafa. The suggestion/motivation for doing so would have been to have to reduce the noise of the signal.

Allowable Subject Matter

Claims 10-12 and 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUAN A. TORRES whose telephone number is (571)272-3119. The examiner can normally be reached on 8-6 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juan Alberto Torres
05/27/2009

/Juan A Torres/
Primary Examiner, Art Unit 2611